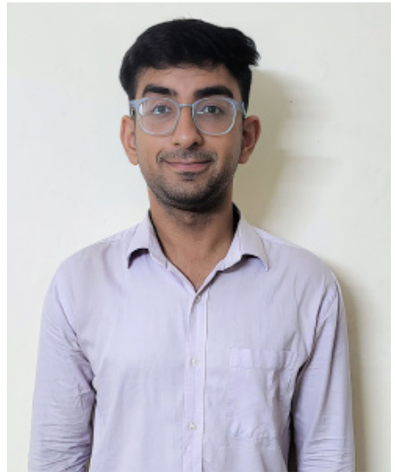
OVERCOMING THE EV HURDLE:

THE POWER OF BATTERY AS A SERVICE



Clockwise from the left:
Amit Kapoor & Kartik

IN THE ERA of climate change and emerging global concerns regarding rising global emissions, the transition towards a sustainable transportation system is the need of the hour. For India, the world's third largest automobile market with annual sales of around two crore vehicles, the transition from Internal Combustion (ICE) Vehicles to Electric Vehicles (EVs) is non-negotiable. However, this transition is severely hindered by the high upfront costs of EVs, leading to its lower adoption in the country. Morris Garages (MG) recently offered 'Battery- as- a-Service' to customers opting for its Comet, Windsor and ZS models. While the service was already available for two and three-wheeler vehicles, MG became the first manufacturer to introduce the service in the passenger vehicle segment of the Indian market.

The battery-as-a-service programme (BAAS) is a battery leasing programme under which the battery is not sold as part of the vehicle but is leased separately to the consumers. Hence, when buying the vehicle, the consumers don't have to pay for the battery at the time of the vehicle purchase. Instead, consumers make a monthly payment to the company based on the distance travelled by the vehicle. As batteries form around 30-40 per cent of the vehicle price, BAAS significantly reduces the prices of electric vehicles and makes them comparable to other ICE vehicles in the market. For Example, MG Comet was initially priced at Rs 7 lakhs. Although it was the cheapest electric vehicle in the market, it was priced at the higher end of the typical consumer's buying spectrum of Rs 4-8 lakhs. Within this price range, there are numerous ICE vehicles offering better value to consumers. However, with the BAAS programme, the MG Comet is highly affordable, available at just Rs 5 lakh. This price positions it competitively amongst its peers, making it a compelling option for Indian consumers opting for an electric vehicle.

In addition to reducing the upfront cost of a vehicle, the BAAS programme offers consumers another set of benefits as compared to the outright purchase of the vehicle with the battery. In the traditional system, the battery of the vehicle needs to be maintained and eventually replaced by the consumer after a certain duration of time, causing additional financial strain to the consumer. As part of the service, the consumer is not responsible for the maintenance and replacement of the battery, sparing consumers the burden of any additional expense. Furthermore, the vehicle's battery is leased through several entities independent of the manufacturers, offering various leasing packages for the consumer to choose from. In the case of MG Windsor, the manufacturer has partnered with four credit agencies offering varied usage charges ranging from Rs 3.5 to Rs 5.8 per km. Additionally, where one plan fixes the minimum amount to be paid each month irrespective of the distance travelled, some plans charge only for the distance travelled without any minimum requirement. Consumers are also allowed to leave the BAAS programme by buying the battery at its remaining value. These wide-ranging plans benefit customers with varying driving habits and make driving EVs more financially viable for each type of consumer as compared to buying the battery upfront at a fixed price with the vehicle.

High upfront costs remain a significant barrier to the adoption of electric vehicles in India. While the achievement of economies of scale in the production of electric vehicles is the ideal way to overcome this obstacle, battery-as-a-service offers an interim solution

The BAAS programme has proved its merit and gained significant popularity in the country's two and three-wheeler market. One of the critical reasons for this is the additional aspect of battery swapping incentives currently in the two-wheeler and three-wheeler market as part of the BAAS programme. Under the battery swapping programme, consumers can swap their defunct, discharged batteries with fully recharged ones at the battery swapping station in minutes. Battery Swapping is a suitable charging alternative for EV consumers in the country, especially for people driving EVs for commercial purposes such as taxis, goods carriers and last mile deliveries. In the absence of battery swapping, the earning potential of drivers would be severely hampered as they would typically spend six to eight hours of their day just charging the vehicle and unable to work. The lack of adequate chargers further added to the downtime experienced by the driver, as a significant amount of time was spent looking for free chargers available. With the option of battery swapping, a driver can operate their EVs throughout the day without worrying about charging, which significantly increases the working hours of the driver and enhances their earning potential by a significant amount. India has seen the growth of various battery swapping operators for two-wheelers and three-wheelers in recent times, such as Sun Mobility, Ola and Battery Smart. The sector is set to grow further, with operators such as Sun Mobility forming collaborations with other entities such as Indian Oil, aiming to establish 10,000 battery swapping stations by 2030.

Despite the high growth and future aspirations for battery swapping in two-wheelers and three-wheelers, battery swapping for four-wheelers is yet to be explored in the Indian market. One of the primary challenges is the size of the battery pack and its placement within the structure of the four-wheeler vehicle, making manual swapping impractical. However, efforts to swap batteries for four-wheelers have been made in some parts of the world, notably by Nio, a Chinese company. Nio has set up 2300 plus battery swapping stations for four-wheelers using automation procedures. For India, a country possessing a swiftly growing yet insufficient charging infrastructure, four-wheeler battery swapping can be a supportive system and a possible area for exploration in the future, expanding the full range of benefits of the BAAS model for four-wheelers as well.

High upfront costs remain a significant barrier to the adoption of electric vehicles in India. While the achievement of economies of scale in the production of electric vehicles is the ideal way to overcome this obstacle, battery-as-a-service offers an interim solution. With its battery leasing options and an added advantage of Battery Swapping systems, the BAAS service makes electric vehicles more viable for Indian consumers and helps India transition towards a fully electric future. BW

Amit Kapoor is Chair, Institute for Competitiveness and Kartik is a Researcher at the Institute for Competitiveness